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6 PERIODIC FACTORS INVOLVING REENLISTMENT DECISIONS:
MEASURED BY SOCIAL INDICATORS

by

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ABSTRACT

A number of statistics available in most military posts were arrayed on a monthly basis for a period of forty-eight months. These variables included areas which were perceived to have relevance for "quality of life" and included the number of reenlistments after first and second terms as criterion variables. After being correlated through time using Cattell's "P-Technique", they were factored by principle components and rotated by Varimax to yield nine independent interpretable factors. These were identified as Economic Cycles, Seasonal Cycles, Unit Activity Cycles, Excessive Training, Holiday Joy, Declining Strength and Morale, Second Term Reenlistments, Christmas Prosperity vs New Year's Slump, and Individual Economic Pressure.

All of these factors were related to some degree to the first and second term reenlistments with the greatest contributions to variance coming from Seasonal Cycles, Excessive Training, Individual Economic Pressure, Second Term Reenlistment, and Holiday Joy (let down?).

To make the study more general, it should span a longer period of months. This would also give a safer margin of number of observations over number of variables. NCO club data should also be added.

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SOCIAL INDICATOR # 1

PERIODIC FACTORS INVOLVING REENLISTMENT DECISIONS

At the present time a great deal of concern is being directed toward the quality of life and the dignity of meaningful vocational involvement. With this emphasis has come a recognition that socio-environmental factors as well as individual factors are very important in the quality of life which individuals enjoy and the perceptions of meaningfulness in their employment.

A new methodology to approach the study of socio-environmental factors has evolved from recent concern in "social indicators" and a recognition that older methods of demographic research must be updated to include variables having greater psychological and sociological implications. Investigators involved in "social indicators" research are continually urged to find new possible variables which may provide sensitive information concerning social interactions and lead to greater predictability of complex human behaviors. By and large social indicators research has focused upon data available from normal accounting procedures but which have not been analyzed conjointly and hence have not been integrated to disclose underlying patterns of interrelationships.

Social Indicators and Reenlistment:

In the industrial world absenteeism, spoilage, petty thefts, and other minor infractions have become identified with low morale and a lack of motivational commitment. In the military service, it has been similarly assumed that these variables are highly relevant to

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understanding morale and reenlistment. Data directed toward these hypotheses are not easily available nor can they be assumed to apply directly to the particular unit being studied by this research. As a result, the Social Indicators Task Force was developed to study variables directly related to McConnell Air Force Base which might conceivably be relevant to questions of reenlistment.

Research Strategy:

The statistics which are available and valuable as social indicators are usually assigned to larger units such as organizations, communities, or census tract and hence are not identified with individual people. It is, however, planned that once qualities of life factors are determined based upon social indicator variables, some related variables can be found which can be identified with individual airmen. Because of this dilemma, the research conducted by this task force is being divided into two discreet groups of studies; the first group will involve the analysis of social indicators data gathered concerning the operations of McConnell Air Force Base and the community of Wichita. The variables involved in these studies will be gathered to represent monthly reporting periods and will be factor analyzed using longitudinal or P-techniques. From this kind of factor analysis is expected that quality of life factors will emerge which will have specific references in time and which will identify periodic functions which influences questions of retention and generalized satisfaction and dissatisfaction.

As meaningful factors emerge new social indicators and new demographic variables will be sought which will give further identification to the underlying influences. A great many interwoven themes establish the socio-affective environment within which the airmen live.

The second phase of this research will involve the identification of social indicators to the individual airman and the officers to determine how individual differences interact with the socio-affective factors provided by the milieu. Since the social indicator factors are of a demographic and statistical nature, it may be difficult to find representative variables from each factor and identify these with other individual-difference behaviors.

METHODOLOGY

The data gathered from base resources to include variables for which monthly reports were available for the last 3 1/2 years. An effort was made to sample the universe of variables in such a way as to have the social, political, and economic facets represented. In order to keep the study limited, many unrelated sources of data were not used with the recognition that they can be included at a later time if their redundancy with current variables is established as an asset instead of a liability. Since a method is being sought to find orthogonal or independent sources of variability, the variables for the first study are selected for heterogeneity of implications as well as ease of collection.

After proper procedures of receiving clearance and permission, the data were gathered from the various base sources. The personnel involved in these divisions were very cooperative and indicated an interest in how their data were related to other variables involved in the study.

The greatest time periods for which data were gathered was 45 months. Although this number of observations is somewhat low for a satisfactory factor analysis, it represents a real constraint over which the investigators had no control and hence had to be accepted as a compromise between pragmatic necessity and theoretical elegance. The data were intercorrelated and factored utilizing the principal components solution with a varimax orthogonal rotation. Nine factors were extracted which accounted for 65% of the total variance. These factors were ultimately identified with socio-economic phenomena occurring on a periodic basis.

RESULTS

The intercorrelation matrix in Table 1 represents that portion of total intercorrelation matrix which related the first and the second term reenlistments with the social indicator variables represented in the body of this study. It can be seen that many of these variables are related to reenlistment even though the significant level is low. One of the most significant findings is the high negative correlation existing between 1st and 2nd term reenlistments. This suggests that some kind of a conservation system may exist which established a balance between these two levels of personnel.

Table 1: Variables

Variable Number	Variable Content	1st term Reenlistment	2nd term Reenlistment
2	Second Term Reenlistment (%)	-.40	+1.00
3	Number assigned	-.09	- .18
4	Rate of returned checks per 1,000	+.09	+ .16
5	Percent immunizations completed	+.02	+ .06
6	Personnel on Control Roster	-.10	+ .09
7	Per cent in excessive training Grade 3	-.27	- .06
8	Per cent in excessive training Grade 5	-.06	- .17
9	Per cent in excessive training Grade 7	+.25	- .33
10	Moving Traffic Violations	+.10	- .15
11	Military offenses	-.04	+ .03
12	Military suggestions submitted	-.10	+ .13
13	News releases	-.03	+ .25
14	Speeches/briefings	+.16	- .15
15	Base tours	+.27	- .18
16	Commissary Sales Grocery	+.09	+ .17
17	Commissary Sales Meat	+.15	- .31
18	Commissary Sales Produce	+.22	- .11
19	Commissary Sales Total	+.13	+ .02
20	Officers Open Mess Restaurant Sales	+.15	- .21
21	Officer Open Mess Bar Sales	-.20	- .15
22	Officers Open Mess Package Sales	-.13	+ .17
23	Officers Open Mess Total Sales	-.08	- .04
24	BX Net Sales	+.05	+ .15
25	January	-.22	+ .03
26	February	-.09	+ .15
27	March	+.08	- .22
28	April	+.13	+ .08
29	May	+.22	- .07
30	June	-.03	+ .13
31	July	+.24	- .12
32	August	+.03	- .03
33	September	-.10	+ .05
34	October	+.09	- .11
35	November	-.20	+ .25
36	December	-.19	- .09
37	Fiscal Year (past+)	-.04	+ .20

Figure 1 shows a trace of these two functions through months using correlations.

Table 2 outlines the first socio-affective factor obtained from the study. It has some of the characteristics of an artifactor involving commissary sales but does carry psychological indications marked by "lack of suggestions submitted". Since this factor is not highly related to reenlistment at either level, its exact identification is not entirely necessary.

Table 2 - Factor 1 Economic

Variable		Loading
19	Total commissary sales	.85
17	Commissary Meat	.81
16	Commissary Groceries	.74
26	February (short month)	-.49
22	Officers Open Mess (Package)	.49
12	Military Suggestions Submitted	-.37
1	Reenlistment 1st Term	.18
2	Reenlistment 2nd Term	-.06

Factor 2, however, found on Table 3 combines some interesting but seemingly unrelated variables. During June, but not February, more moving violations and commissary produce sales seem to be high and more officers used the restaurant. Most of these variables can be explained by a seasonal cycle. The number of non-coms which are obtaining excessive training for grade seven must be related in a more obscure manner. The factor is positively related to first term reenlistments and negatively related to the second term reenlistments. By the February of Wichita winter, first term reenlistments go down to be revived again in June.

Table 3 - Factor 2		Summer vs Winter (Seasonal Cycle)
Variable #		Loading
18	Commissary Sales (Produce)	.77
9	% in excessive training (Grade 7)	.71
20	Officers Mess Restaurant	.65
10	Moving Traffic Violations	.64
30	June	.57
26	February	-.33
1	Reenlistment 1st Term (%)	.31
2	Reenlistment 2nd Term (%)	-.16

Factor 3 is found in Table 4 and has been identified as Unit Activity vs Vacation Lulls. The positive loading in February and the negative loading in September and August seems to confirm this identification. During the late summer months immunizations, checks returned, and military suggestions are low. During other periods, of which February is the most typical, base tours, speeches, and briefings are at a high level.

Table 4 - Factor 3		Activity vs Vacations
Variable #		Loadings
15	Base Tours	.77
14	Speeches and Briefings	.84
5	Immunizations	-.56
4	Rate of checks returned	-.38
26	February	.39
12	Military Suggestions Submitted	-.34
33	September	-.33
32	August	-.33
1	Reenlistment 1st Term (%)	.22
2	Reenlistment 2nd Term (%)	-.11

Factor 4 is identified with Excessive Training at all three grades. It is particularly significant since it seems to be a deterrent to reenlistment on both levels. Interpreted in another way it would say, during those times which a number of persons are involved in excessive training,

individuals considering reenlistment choose to leave the service. May seems to be a month which is somewhat free from excessive training and hence it seems to be favored for reenlistment.

Table 5 - Factor 4 Excessive Training vs Reenlistment Enthusiasm

Variable #		Loading
8	% in excessive training Grade 3	+.83
7	% in excessive training Grade 3	+.78
3	# assigned to unit (post?)	+.40
29	May	-.38
5	% immunizations completed	-.48
9	% in excessive training	+.33
1	Reenlistment 1st Term (%)	-.28
2	Reenlistment 2nd Term (%)	-.16

Factor 5 is a difficult factor to identify since it has a great deal of artifactor contamination. It shows that the officer's club sales in general are up in January, particularly those involving the sales of liquor, and at the same time there is a reduction in interest in reenlistment. Very likely the upswing reflects the "Holiday Spirit", which may also generate some nostalgia for civilian life.

Table 6 - Factor 5 Holiday Joy vs Committment

Variable #		Loading
21	Office Bar Sales	+.88
23	Officer Total Sales	+.79
25	January	+.50
22	Officers Package Sales	+.52
1	Reenlistments 1st Term (%)	-.25
2	Reenlistments 2nd Term (%)	-.07

Factor 6 can be identified with declining unit strength and morale. This factor is particularly important since it shows that declining strength is not significantly related to the % of reenlistments. It shows that the number of military offenses are increasing with recency

and that the number of suggestions submitted is decreasing. This factor indicates clearly both a growing increase in apathy and dissention, characteristics which may become descriptive of the contemporary military establishment.

Table 7 - Factor 6 Declining Strength and Morale

Variable #		Loading
37	Fiscal Year Ago	-.77
6	Personnel on Control Roster	-.80
3	# assigned	-.68
11	Military Offenses	+.98
12	Military Suggestions Submitted	-.49
1	% Reenlistment 1st Term	+.05
2	% Reenlistment 2nd Term	-.10

Factor 7 contains most of the variance involving with 2nd term reenlistments. This specifies June as the month when 2nd time reenlistments are most likely to occur and emphasizes that the 2nd term reenlistments occur when there is a low point in the first term reenlistments. They are also associated with lulls of news releases and points where there is a greater amount of excessive training in Grade 3.

Table 8 - Factor 7 2nd Term Reenlistments

Variable #		Loadings
2	2nd Term Reenlistment	.82
30	June	.52
1	% Reenlistment (1st Term)	-.44
13	News Releases	-.41
9	% in Excessive Training Grade 3	-.30
27	March	-.30

Factor 8 can be identified as a Christmas Sales Factor. It reflects the contrast of prosperity and poverty which the season enforces, with very high sales in December and very low sales in January. This factor has relatively little bearing on reenlistment.

Table 9 - Factor 8 Christmas Prosperity vs New Year's Slump

Variable #		Loading
24	BX Net Sales	.81
36	December	.78
25	January	-.41
22	Officer's Package Sales	.32
25	Total Officer Club	.33
1	1st Term Reenlistments (%)	-.18
2	2nd Term Reenlistments (%)	+.07

Factor 9 has been identified with Individual Economic Pressure and seemingly has considerable influence on 1st term reenlistments but no influence at all on 2nd term reenlistments. The rate of returned checks is the primary variable loading this factor. The time of increasing economic pressure seems to be in October and may be due to bills coming due for August and September vacations and for the school clothes for the children. There is a release of economic pressure in May and July.

Table 10 - Factor 9 Individual Economic Pressure

Variable #		Loading
4	Rate of Returned Checks	.72
33	September	-.38
34	October	.38
29	May	-.33
31	July	-.34
13	News Releases	-.31
1	Reenlistment 1st Term (%)	.28
2	Reenlistment 2nd Term (%)	.01

SUMMARY

Data concerning a number of diverse base functions were gathered over a period of 45 months. These variables were intercorrelated with marker variables indicating months and years to identify the

socio-affective elements involved in Air Force life. These intercorrelations were factored to yield nine factors which can be related to the periodicity of military life.

The first reenlistment decision seems to be fairly distributed over most of the factors found. The second reenlistment seemed to be highly focused on a single factor which involved the month of June, the number of first reenlistments and the amount of excessive training going on in Grade 3 at that time. The factors found include a General Economic Factor, The Summerwinter Seasonal Cycle, Unit Activity vs Vacations, Excessive Training vs Enthusiasm, Holiday Joy, Declining Strength and Morale, Christmas Prosperity, and Individual Economic Pressures.

These factors are sketchily defined and very hypothetically identified. They do, however, indicate some of the underlying themes which seem to be involved in questions of reenlistment. The present study will act as a nucleolus around which a larger study will be conducted. More statistics will be gathered which can be tied to the monthly observation periods used for this study. Ultimately the study will be extended along a greater time continue to provide a larger and hence more stable base for observation.

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Varimax to yield nine independent interpretable factors. These were identified as Economic Cycles, Seasonal Cycles, Unit Activity Cycles, Excessive Training, Holiday Joy, Declining Strength and Morale, Second Term Reenlistments, Christmas Prosperity vs New Year's Slump, and Individual Economic Pressure.

All of these factors were related to some degree to the first and second term reenlistments with the greatest contributions to variance coming from Seasonal Cycles, Excessive Training, Individual Economic Pressure, Second Term Reenlistment, and Holiday Joy (let down?).

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